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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/069,088 04/29/98 LIANG

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TM02/0313

EXAMINER

NGUYEN, V

ART UNIT

PAPER NUMBER

2151

DATE MAILED: 03/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/069,088

Applicant(s)

SHENG LIANG

Examiner

VAN NGUYEN

Group Art Unit

2151

☒ Responsive to communication(s) filed on Dec 27, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-25 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-25 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

1. This Office Action is response to Amendment received on January 04, 2001.
2. Claims 1-25 are presented for examination.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 USC § 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1-25 are rejected under 35 U.S.C. 102(e) as being anticipated by **Richardson** (U.S.PAT.NO. 5,974,536; hereinafter **Richardson**).

As to claims 1, 9, 17, and 25, Richardson teaches (col.4, lines 30- col.6, line 67) time profiling multiple threads of execution (profiling virtual memory access by one or more threads), a program (program thread), interrupting (interrupts) execution of all of the threads (program thread), determining (determines) whether register data (placement data) corresponding to a selected thread (corresponding to respective threads) has changed (has been modified); and

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providing an indication (track the relative frequency at which virtual memory addresses are accessed by each thread; col.2, lines 65-67) of the change for the selected thread.

As to claims 2, 10, and 18, Richardson teaches (col.4, lines 30-67; col.5, lines 30-50) accessing stored data corresponding to the selected thread (virtual memory addresses are accessed by each thread); and comparing the stored data with register information stored following a previous interrupt (analyzes virtual memory accesses by one or more threads).

As to claims 3, 11, and 19, Richardson teaches (col.6, lines 5-67) computing a value corresponding to the stored data; and determining a relationship between the computed value and the previously stored register information.

As to claims 4, 12, and 20, Richardson teaches (col.5, lines 35-67) updating a memory segment (analyzes which regions of virtual memory are accessed by each program thread) to reflect that the selected thread is running when it is determined that the computed value and the previously stored register information do not match.

As to claims 5, 13, and 21, Richardson teaches (col.4, lines 30-67 and col.6, lines 1-67) a selected thread (a thread), a multi-threaded program (program thread), suspending (interrupts) execution of the multi-threaded program (program thread), retrieving register data (register) corresponding to the selected thread, computing a value (determines a valid load) based on the register data, comparing (the histogram generator walks...stored instruction is reached) the computed value with register information stored following a previous suspension of the multi-threaded program, and regarding (histogram data for each thread...upon particular

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performance needs) the selected thread as running if the computed value is different from the previously stored register information.

As to claims 6, 14, and 22, Richardson teaches (col.6, lines 45-67) updating (a histogram is then incremented) the previous register information based on the computed value.

As to claims 7, 15, and 23, Richardson teaches (col.4, lines 35-67) providing an indication (assembly code identified by the returned program counter) corresponding to a portion of the program containing the selected thread.

As to claims 8, 16, and 24, Richardson teaches (col.4, lines 35-67 and col.6, lines 1-67) time profiling multiple threads (profiling virtual memory access by one or more threads), a program (program thread), suspending (interrupts) execution of the program; determining (operating system sets a PC to reference) whether stored information corresponding to processor registers for each thread (the thread) indicates that the thread is running (the thread being run), and recording (recorded in a histogram) time-profiling information for each running thread.

Response to Arguments

4. Applicants' arguments received on January 04, 2001 have been fully considered but they are not persuasive.

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Applicant argues “Richardson fails to teach determining whether register data corresponding to a selected thread has changed” (Amendment; page 2, lines 1-14). The Examiner disagrees. The rejection above now clarifies how Richardson meets the claimed limitations.

The broadly recited limitations of claims 1, 16, and 29 are anticipated by the cited reference.

Applicant argues “no comparing, and thus does not perform comparing the computed value with register information stored following a previous suspension of the multithreaded program” (Amendment; page 2, lines 15-page 3, line 2). Inherently, the comparison must be performed for obtaining a valid load or store instruction.

As to claims 5-8, 13-16, and 21-24, the arguments are not persuasive for reason as discussed above with regards to claim 5.

Applicant argues “...does not determine whether registers indicate that a thread is running” (Amendment; page 3, lines 3-8). The Examiner disagrees. Richardson also meets the claimed limitations.

As to claims 16 and 24 the arguments are not persuasive for reason as discussed above with regards to claim 8.

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Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Van Nguyen whose telephone number is (703) 306-5971. The Examiner can normally be reached on Monday-Thursday from 7:30 AM - 5:00 PM. The Examiner can also be reached on alternate Friday.

7. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone is (703) 305-9600.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademark
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or fax to:

(703) 308-9051 (for formal communications intended for entry)
(703) 305-9731 (for informal or draft communications)

VHN
March 11, 2001

MAJID BANANKHAH
PRIMARY EXAMINER